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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,730	02/23/2004	Mario I. Wolczko	SUN030248	9462

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EXAMINER	
JOHNSON, BRIAN P	
ART UNIT	**PAPER NUMBER**
2183	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/784,730	WOLCZKO ET AL.	
	Examiner	Art Unit	
	Brian P. Johnson	2183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 January 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. Claims 1-19 have been examined.

Acknowledgment of papers filed: amendments and remarks on 9 January 2007. The papers filed have been placed on record.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Chrysos (U.S. Patent No. 6,148,396).

4. Regarding claims 1 and 6, Chrysos discloses a method of linking control transfer information with sampling information (col 5 lines 40-42) for instructions executing in a processor (col 2 line 17) comprising: storing information relating to execution events (col 1 lines 28-31) in a history queue (fig. 3) including at least one program counter value for a control transfer event (col. 11 lines 53-54); selecting an instruction for sampling (col 5 lines 39-42); storing information relating to the instruction for sampling (col 5 lines 44-48); freezing the information relating to execution events in the history queue when the information relating to the instruction for sampling is to be reported to provide frozen execution event information (col 5 lines 45-58);

Note that the "frozen" information is considered to be the profile information saved into the registers.

Reporting the information relating to the instruction for sampling; and, enabling access to the frozen execution event information (col 6 lines 41-44) in the history queue (fig. 3).

5. Regarding claims 2 and 7, Chrysos discloses the method of claims 1 and 6 further comprising: freezing the execution event information provides information to enable reconstructing an execution path of events adjoining the instruction (col 6 lines 42-45).

6. Regarding claims 3 and 8, Chrysos discloses the method of claims 1 and 6 wherein: the storing information relating to execution events and the storing information relating to the instruction occur within separate structures of a processor (col 5 lines 45-48 and fig 3).

Note that the citation discloses that the profile information is saved in a set of internal profile registers.

7. Regarding claims 4 and 9, Chrysos discloses the method of claims 1 and 6 wherein: the freezing the information relating to execution events disables storing of additional information relating to execution events (col 5 lines 45-48).

Note that this claims appears to be referring to paragraph 28 of Applicant's specification. Paragraph 28 states that profile information is not overwritte in certain circumstances. Note that line 47 particularly states that the information is "accumulated" rather than updated/removed.

8. Regarding claims 5 and 10, Chrysos discloses the method of claims 1 and 6 further comprising: enabling storing information relating to execution events occurring after execution of the instruction for sampling (col 9 lines 48-50 or col 5 lines 60-62).

Note that the retired information can be considered to be information relating to execution events occuring after execution of the instruction (for sampling or otherwise).

9. Regarding claim 11, Chrysos discloses a processor (col 2 line 17) comprising: an instruction pipeline (col 2 lines 25-26); a sampling mechanism coupled to the instruction pipeline (fig 3--in combination with additional processor circuitry), the sampling mechanism selecting an instruction for sampling and storing information relating to the instruction for sampling (col 5 lines 44-48); a history queue coupled to the pipeline, the history queue (fig 3)

Note that, in view of paragraph [0007] of Applicant's specification, the "history queue" appears to be a mechanism "which records most recent control transfers", which happens to be the case with the mechanism shown in figure 3 of Chrysos.

Storing information relating to execution events (col 11 lines 30-32), the history queue freezing the information relating to execution events when the information relating to the instruction for sampling is to be reported to provide frozen execution event information (col 5 lines 44-48) so as to enable linking control transfer information with sampling information for instructions executing in the processor (col 5 lines 54-62).

10. Regarding claim 12, Chrysos discloses the processor of claim 11 wherein: the sampling mechanism reports the information relating to the instruction for sampling (col 5 lines 44-48).

Note that the "sampling mechanism" is considered to be the mechanism used to complete the sampling functionality specified in the citation.

11. Regarding claim 13, Chrysos discloses the processor of claim 11 wherein: the history queue enables access to the frozen execution event information (col 6 lines 41-44).

12. Regarding claim 14, Chrysos discloses the processor of claim 11 wherein: freezing the execution event information provides information to enable reconstructing an execution path of events adjoining the instruction (col 5 lines 54-60).

13. Regarding claim 15, Chrysos discloses the processor of claim 11 wherein: freezing the information relating to execution events disables storing of additional information relating to execution events (col 5 lines 45-48).

Note: see claim 4.

14. Regarding claim 16, Chrysos discloses the processor of claim 11 wherein: the history queue stores information relating to execution events occurring after execution of the instruction for sampling (col 5 lines 60-62).

Note that information related to "whether the instruction was retired or abored" is determined after execution.

15. Regarding claim 17, Chrysos discloses a method of monitoring control transfer information for instructions executing in a processor (col 5 lines 44-48) comprising: storing information relating to execution events (col 5 lines 44-48) in a history queue (fig. 3) including at least one program counter value for a control transfer event (col 11 lines 53-54); freezing the information relating to execution events in this history queue when the information relating to the instruction is to be reported to provide frozen execution event information (col 5 lines 54-62); and, enabling access to the frozen execution event information (col 6 lines 41-44) in the history queue (fig. 3).

16. Regarding claim 18, Chrysos discloses the method of claim 17 wherein: the freezing occurs based upon an instruction sample being reported (col 5 lines 44-46).

17. Regarding claim 19, Chrysos discloses the method of claim 1 wherein the control transfer event is selected from the group consisting of control transfer instruction resolved taken, instruction flush performed, and instruction trap taken (col 10 lines 25-27).

Examiner asserts that the wording of this claim is similar to an "or clause", requiring only one of the listed elements to be found in prior art. A PC is saved for a control transfer instruction (branch instruction) that is resolved taken when those instructions are chosen to be sampled.

Response to Arguments

18. Applicant's arguments filed 9 January 2007 have been fully considered but they are not persuasive.

19. Applicant claims that Chrysos teaches a profile information register to store the PC for a selected instruction and not for a control transfer event. The validity of this statement appears to depend on whether an instruction can be considered a control transfer event. Examiner believes that it can.

New claim 19 contains a limitation that states, "wherein the control transfer event is selected from a group consisting of a control transfer instruction resolved taken. . ." This, in itself, appears to indicate that certain instructions (in particular, control transfer instructions) can be considered to control transfer events. Therefore, since 1) Chrysos teaches storing the PC for a selected instruction, 2) those selected instructions often include control transfer instructions, and 3) control transfer instructions are considered to be control transfer events, it follows that Chrysos teaches storing the PC for control transfer events.

Conclusion

The following is text cited from 37 CFR 1.111(c): In amending in reply to a rejection of claims in an application or patent under reexamination, the applicant or patent owner must clearly point out the patentable novelty which he or she thinks the claims present in view of the state of the art disclosed by the references cited or the objections made. The applicant or patent owner must also show how the amendments avoid such references or objections.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian P Johnson whose telephone number is (571) 272-2678. The examiner can normally be reached on M-F, 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (571) 272-4174. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).